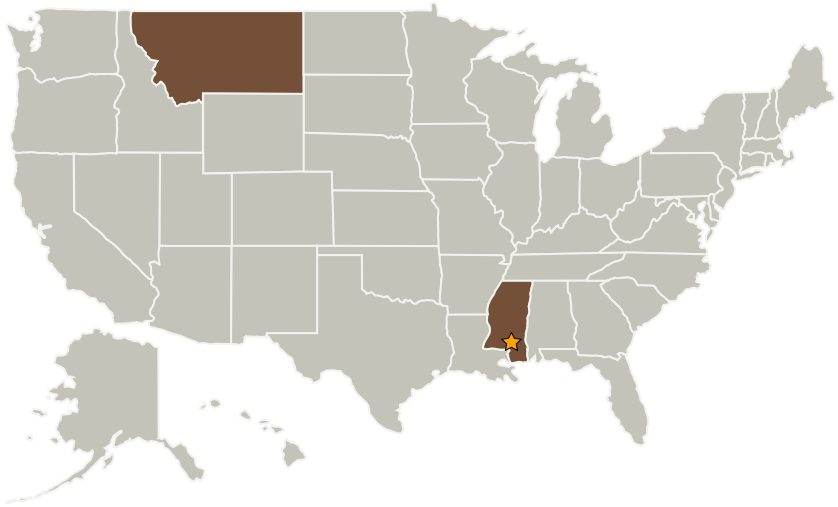
Precise automatic image coregistration tools to enable pixel-level change detection, Phase I

Completed Technology Project (2004 - 2004)

Project Introduction

Automated detection of land cover changes between multitemporal images has long been a goal of the remote sensing discipline. Most research in this area has focused on methods for detecting and categorizing changes captured by two or more images [Jensen, 1991, Singh, 1989; Coppin and Bauer, 1996], but precise coregistration of images is required and remains a key challenge [Dai and Khorram, 1998, Stow and Chen, 2002, Verbyla and Boles, 2000]. This SBIR project team proposes to develop a software package specifically optimized for automatic and precise coregistration of two or more images, which will in turn enable change detection algorithms to focus on salient changes rather than highlight image registration errors. In accordance with this subtopic?s guidance to ??focus on the systems engineering aspect of application development rather than fundamental research??, our project will emphasize integration of state of the art methods to create a flexible, robust, and easy to use tool. Presuming success through Phase II, this will enable NASA researchers and unsophisticated users to minimize or eliminate false ? changes? caused by image coregistration errors and thus increase utilization of Earth Science observations from NASA sensors and other data sources (IKONOS, aerial photography, etc.).

Primary U.S. Work Locations and Key Partners



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Stennis Space Center (SSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Stennis Space Center(SSC)	Lead Organization	NASA Center	Stennis Space Center, Mississippi
Positive Systems, Inc.	Supporting Organization	Industry	Whitefish, Montana

Primary U.S. Work Locations	
Mississippi	Montana

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Cody A Benkelman

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.3 Human Health and Performance
    - TX06.3.3 Behavioral Health and Performance